



THE IMPACT OF DIGITALIZATION ON THE EFFICIENCY OF EGYPTIAN CONTAINER TERMINALS "CASE STUDY: ALEXANDRIA CONTAINER TERMINAL"

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ABSTRACT:

Ports play a vital role in the international economy through ensuring continuous safety and efficient flow of goods worldwide. Moreover, Ports offer a variety of value-added activities, such as regulatory requirements which include inspecting and releasing for inbound and outbound cargo provided by the customs authority, transhipment, container depot, as well as transporting cargo by container in a highly safe and efficient procedures. Furthermore, with the new trends of technologies ports services can be improved to ensure a higher level of efficiency. Therefore, this research aims to find out the impact of applying the digitalization technology on all Alexandria container terminals to increase their efficiency and competitiveness; through applying SWOT analysis to identify the strengths, and weaknesses as well as opportunities that can be gained by implementing digitalization while overcoming challenges and threats.

Keywords: Digitalization, container terminals, Alexandria port.

1. INTRODUCTION:

Digitalization works on empowering the marine industry to go beyond its traditional boundaries as well as providing new opportunities of increasing the productivity, efficiency and the sustainability of logistics services. Thus, the main goal of transforming the traditional container terminals in ports to digitalized container terminals is to adapt new technologies to allow better decision making, planning and better investment opportunities through high coordination and integration between management levels in different ports. Moreover, this research provides an overview of the usage of digitalization technology in the Egyptian container terminals to determine the challenges and obstacles of applying such technology in the Egyptian ports (Heilig et al., 2017). In the last decade the usage of Information Technology (IT) became critical in all fields all over the world, which have been known after that as

digitalized technology. However, this type of technology has become an important indicator to rely on to survive in highly competitive markets especially in ports and maritime industries. This is because it can increase the communication and decision making that will bring about a high level of productivity, efficiency, safety as well as a high level of integration between governmental entities that will result in providing real time data and generate reports in which they are considerably critical in such sector (Heilig et al., 2019; Shehadeh, 2020).

The importance of this research stems from the implementation of digitalization technology in the maritime sector in Egypt to cope with the new challenges faced in it as this sector started to depend on it in managing most of the critical operations. Therefore, it has become important to implement the digitalization technology in all sectors, entities and departments in Alexandria container terminal. Actually, the implementation of digitalization technology in Alexandria container terminal will timely provide the employees there with all the data and information required to promote its performance. The implementation of digitalization technology in Alexandria container terminal requires important steps. Firstly, to analyze and clarify the current situation of Alexandria container terminal to identify the challenges that will be faced applying such technology in it. Secondly, providing the principles of transforming the traditional Alexandria container terminal into Digitalized Alexandria container terminal through digitalization technology.

1. LITERATURE REVIEW:

The literature review in this research is based on some published research that focus on digitalization technology and its relationship with other sectors in ports, particularly container terminals. The literature review includes the countries that have implemented the Digitalization technology in their container terminals and will show how it has improved their competitiveness and efficiency from 2017 until 2021.

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Shalaby (2017) has analyzed the direct and indirect indicators that affect the management process of logistics in the Egyptian ports as well as identify the indicators of competitiveness of Egyptian ports, also provide a platform that could be used to manage the logistics in a competitive way. The research relied on qualitative data that were collected from three samples: employees, senior management and customers. Then the collected interviews and questioners were analyzed, and they proved that there is a positive relationship between the logistical service provided (Planning, implementing, organizing etc.) and the competitiveness of the ports (cost, quality, flexibility and reliability etc.). The research found out that there is a pressing need of promoting advanced technology rather than depending on traditional and old ways. The paper suggested the use of Shalaby Platform in improving the level of the provided logistics service to increase competitiveness of the ports.

The Egyptian maritime transport strategy (2018) aimed to Improve and increase the competitiveness of Egyptian ports through the following:

- 1- Firstly, achieving integration between all Egyptian ports by developing an integrated plan that includes an investment plan for it.
- 2- Secondly, establish and develop the infrastructure and superstructure of the Egyptian terminals according to international standards and economic market through increasing the productivity and improving the infrastructure of Egyptian terminals, focusing on investing in the construction of new projects and stations of different types, taking into consideration the current needs of each port and the needs that will arise in the future.
- 3- Thirdly, developing the existing projects and improving their operational, administrative and technical efficiency.
- 4- Fourthly, setting frameworks to attract investors and standards of the services related to marine supplies, catering and other services that are performed by independent parties directly with ships and shipping lines, while developing a price control mechanism.

The African project of Digitalization in (2020) had a full focus on exploiting digital technology to transform societies and economies in Africa to enhance integration in Africa and achieve economic growth, encourage job creation and

end poverty to ensure the benefits of the digital revolution for social and economic development, as well as establishing and improving digital networks and services with the aim of encouraging trade, investment and capital flows between African countries.

These competitive capabilities of a container terminal will be achieved through the application of digitalization. In fact, digitalization is defined as the new technologies used in providing a simple plan that determines the priorities of work in the future, improves the efficiency of all production and service processes, and develops sustainability, safety and working conditions. In addition, digitalization is employed in increasing the level of awareness about issues related to new technologies. Digitalization allows for an increase in the efficiency and better completion of jobs. Furthermore, it leads to an increase in the efficiency of monitoring techniques for different processes and for workers as well. Moreover, it includes digital linkage between data and tools, machines, infrastructure. Likewise, digitalization includes inputs for standards for using technology to enhance transparency, motivation and communication, occupational safety conditions and standards for reducing environmental pollution, as well as the ability to work in time of emergency (Igi-global, 2020).

Faced with a continuously changing environment, and an international economic characterized by ferocious competition, the digitalization has become a sine qua non condition for dealing with this (Kassou, et a., 2021). In this context, D'Amico, et al., (2021) focused on innovations technologies in ports and explored their effects on ports transition. His research studies technology innovation in ports and shipbuilding. The paper aimed to appreciate the consequences of innovations naval technologies such as containerization on port facilities. In addition, Alahmadi, (2021) Block chain is one of the technology can provide an advanced, transparent, and secure environment for organizations and businesses. This review paper discussed the adoption of block chain in ports and shipping industry to support digital transformation. It also explored the integration of this technology into the current ports and shipping ecosystem.

GAP ANALYSIS:

Literature review has shown that the importance of digitalization is increasing day by day, which should be strategically applied to transform traditional ports and their various sectors, especially their container terminals to digitalization to raise their efficiency. Although, the literature review of previous studies and research included several sectors in different ports. However, it did not focus on Alexandria port container terminal and how to apply digitalization to it.

CONTRIBUTION

This research will clarify how to apply digitalization to Alexandria container terminal, shows its strengths, weaknesses, opportunities for success and difficulties through using SWOT analysis and an electronic questionnaire.

2. RESEARCH PROBLEM

Despite of the important location of Alexandria port on the Mediterranean, and the volume of work entrusted to it, the container terminal lacks the competitive capabilities compared to other ports on the northern Mediterranean Sea. Moreover, it does not have high efficiency in performing operational processes like its counterparts in the southern European coast, due to the lack of digitalization and its applications. In fact, the use of digital technology in its management system will lead it to cope with the rapid developments in global ports and qualify it to compete in future with modern operations in the Mediterranean ports. The container terminal does not have such technologies, which affects its efficiency. In addition to the huge losses, waste time consumed, money and efforts due to the lack of digitalization. The Alexandria port container terminal has many sectors and departments that require digitalization.

The main objective of this research is based on the possibility of applying digitalization to all administrations of the Alexandria port container terminal to increase their competitiveness and enhance their operational efficiency. Thus, it will be discussed through several sub-objectives for the purpose of monitoring

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and clarifying the current situation of Alexandria port container terminal and its difficulties in the process of transforming to smart port through digitalization applications. Thus, the main question of this research is: how can the stages of digital technology be applied to all departments of the Alexandria port container terminal to increase their competitive efficiency?

3. RESEARCH METHODOLOGY:

This research relies on a deductive approach through a descriptive analytical method, which is based on collecting data from previous literature related to the subject of the study. Furthermore, a field study was carried out to identify the factors and variables that affect the objectives of the study to test the validity of the assumptions in order to know the impact of the digital technology on the efficiency of container terminal.

This is conducted through the collected data from survey to container terminal workers, as well as in-depth personal interviews with workers and officials of the container terminal. This is in addition to employing SWOT analysis to know the strengths, weakness, opportunities and threats.

3.1 SWOT ANALYSIS:

SWOT analysis is a strategic planning tool used to assess the strengths, weakness, opportunities and threats of any organization as shown in table No. (1). SWOT analysis aims to build on our strengths, increase opportunities and prevent weaknesses and threats. SWOT analysis is used to explore the possibilities of finding new solutions to a company's problem and making the right decisions. Moreover, it is applied to determine the available opportunities for the company (Arslandere and Ocal, 2016). The opportunities and threats stem from analyzing the external organizational environment, while the strengths and weaknesses emerge from analyzing the internal organizational environment (Vlados, 2019).

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	Useful	Harmful
Internal environment	Strengths	Weaknesses
external environment	Opportunities	Threats

Table (1) SWOT Analysis

(Vlados, 2019).

Current situation at Alexandria container Terminal:

Despite the huge progress in the field of developing international port container terminals, Alexandria port container terminal did apply most of the advanced technologies and technological methods. However, some of them were implemented during the last two decades (2000-2020), The following analysis clarifies the current situation in Alexandria port container terminal in terms of its use of information technology and its strengths and weaknesses.

Strengths of using information technology in Alexandria container terminal:

- The use of information technology (IT) has led to increasing the speed of information transmission and the ability of applying electronic documents which has had an effective impact on increasing the productivity and effectiveness of port operations.
- The use of information technology (Real Time Data) has allowed to track the movement of containers, berths and yards which has led to an integrated service system.
- The existence of an electronic data exchange system (EDI) with external parties and shipping lines has resulted in efficiency of the provided services.
- The use of electronic data exchange system (EDI) has led to powerful management over Logistics and Supply Chain.
- The use of modern information systems has allowed data availability just in time (JIT).

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- The use of Advanced systems and devices have enabled workers to track the various operations of the station, decrease the percentage of errors, and conclude to quick decision making.
- The use of technology has allowed a high degree of control over the inspection process on containers to make sure that commodity matches the original documents.
- The use of technology has enabled a full control over the process of Storage, Loading and unloading places on all berths, which has resulted in increasing the speed of operations.
- The information network has enabled the integration between different modes of transportation (Sea, Land and Railways).
- The use of multimodal transport (transporting goods through a single document) has become easier through using a single shipping document that includes all logistics services.
- The use of information network has facilitated efficient coordination among different transportation companies and exchanging logistic services among them and the container terminal.
- The use of information technology has allowed activating safety requirements systems and combating environmental pollution.
- The use of information technology has led to have a full up to date access over the storage and the absorptive capacity of goods traded monthly and even yearly, which has in turn allowed increasing the efficiency of trading rates and the speed of other operations like unloading, storing, distributing, etc.
- The use of integrated information systems among different departments through modern devices and equipment as well as qualified workers has led to increasing the efficiency of the container terminal.
- Usage of Automated gates and CCTV for monitoring and controlling process.
- Preparing statistics and graphs for all operations of the container terminal.
- Developing annual plans for the container terminal through predictive information programs.

• The Technological systems (computer applications) has facilitated the follow-up and evaluation of the regularity of employees in all departments and service providers at the container terminal.

Weaknesses of using information technology in Alexandria container terminal:

- Low financial investment which is important to develop the infrastructure and communication systems as well as training the workers to be at the same level of modern container terminals.
- High cost of operating and maintenance.
- Lack of qualified workers to work on the new advanced systems.
- difficulty of handling large numbers of ships at one time due to insufficient berths which affect loading, unloading, and storage processes.
- Failure to meet the specifications of the container terminal to receive the sixth generation of container ships.
- Lack of periodic maintenance of the equipment used and the high rate of breakdowns.
- bureaucracy in administrative work.
- Lack of evaluation studies of provided services' prices in order to be an attraction factor compared to other container terminals in the region.
- Presence of multiple administrative levels in the organizational structure of the container terminal, which leads to inefficient procedures and decision making.
- Absence of job description for workers (specific job duties) led to failure in meeting the required responsibilities and duties in the right way.
- Failure to keep pace with the regulations, legislation and laws of modern information technology systems.
- Lack of specialized services to support multimodal transport.
- Absence of an administration building with an integrated information center to have control and monitoring over all devices.

Threats of using information technology in Alexandria container terminal:

- Intensification of regional competition in the field of maritime transport in the light of political and economic changes.
- Limited training and executive capabilities at Alexandria port container Terminal which will affect the process of applying digitalization technology project.
- Limited supervisory experience in identifying risks posed by digitalization technology.
- Increased competition regarding some Mediterranean container terminals.
- Increased internal competition between container terminals of Egyptian seaports especially between the ports of Alexandria and Dekheila.
- The significant impact of the attractive frameworks and standards used by the port terminals near the Alexandria container terminal in the Mediterranean.
- The successive administrative and technical decisions and plans at a rapid pace affect the possibility of applying digital technology.
- The expectation that investment returns (ROI) will not be achieved as a result of applying digitalization at Alexandria port container terminal.
- Weak development of the legislative, procedural and institutional infrastructure in Alexandria port container terminal which ensures the full realization of digital technology.
- Challenges related to the electronic security of digital technology in Alexandria port container terminal.
- Huge administrative procedures related to unloading and shipping goods at Alexandria port container terminal.
- Belief in the limited competitive return from the digitalization project at Alexandria port container terminal.
- The global crisis of the corona epidemic and its economic impact on maritime transport.
- The global financial crises and their consequences on companies working in the maritime field.
- The political conflicts from several countries in the Mediterranean region and their economic effects on ship traffic and container handling in the maritime filed.

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- The ships accidents in the Mediterranean countries negatively affect the movement of world trade.
- The strong competition of other ports in the Mediterranean region which may increase the acquisition of those ports in handling more vessels which will affect Alexandria port container terminal.
- The continuous and rapid technological progress in many ports surrounding the port of Alexandria in the Mediterranean Sea (Turkey, Greece, Israel).
- The increase in energy prices and the instability of its global prices affect maritime transport, especially the movement of container ships.
- Weak commitment to apply all environmental international standards.
- Weak findings and lack of government investment.
- Lack of research and evaluation.

Opportunities of using information technology in Alexandria container terminal:

- Increasing the pace of carrying out the tasks of ships and port operations, and ensuring accesses to accurate and timely information.
- Availability economies of scale that enhance growth and profitability across supply chains.
- Increasing productivity, equipment and human resources, and achieving a better return on investment in seaports.
- Enhancing security by improving information related to goods, shippers and consignees.
- Improving the integration of the port across different departments through the electronic exchange of data and use of the internet.
- Minimizing congestion at the port through electronically controlling the management of gates, which leads to reduction in accidents.
- Increasing customer satisfaction by providing multiple services to them while improving electronic services.
- Reducing operational procedures to the minimum and increasing their effectiveness to the maximum.

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3.2 QUESTIONNAIRE ANALYSIS:

An electronic survey was conducted using google form; 102 responses were collected and analyzed as shown in next tables:

A. Port management dimension:

Regarding the port management dimension, results have shown that about 37.8% of the respondents strongly agreed on applying the digitalization in Alexandria port container terminal. While the majority of answers agreed with 47.9%, 10.2% are neutral and 4.1% disagreed, as illustrated in table 2.

1. Section one : Port management dimension.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.1. The legislative and legal environment of Alexandria container terminal support the process of applying digitalization.	0.0%	1.9%	5.9%	53.9%	38.3%
1.2. The port management works on decreasing operational cost through focusing on new technologies.	0.0%	0.9%	8.9%	51.9%	38.3%
1.3. Alexandria container terminal management works in a competitive way to be unique in the provided services.	0.0%	0.0%	11.9%	48%	40.1%
1.4. Alexandria container terminal management is investing in its infrastructure to be fully digitalized.	0.0%	0.0%	14.8%	50%	35.2%
1.5. Alexandria container terminal management is investing in new berths that works with new technologies.	0.0%	1%	15.3%	47%	36.7%
1.6. Alexandria container terminal management is trying to compete with other ports in the Mediterranean Sea.	0.0%	1.9%	10.9%	49%	38.2%
Dimension Average	0.00%	4.1%	10.2%	47.9%	37.8%

Table	(2)	Port	manageme	ent dim	ension.
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B. customer satisfaction dimension:

From their point of view, 52.9% of the respondents agreed and feel satisfied about applying digitalization and 38.4% of them strongly agreed. About 7.8% were neutrals, and the rest 0.6% disagreed, as shown in table 3.

2. Section two: Customer satisfaction dimension.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
2.1. The implementation of digitalization technology in Alexandria container terminal will increase customer satisfaction.	0.0%	0%	9%	46%	45%
2.2. The implementation of digitalization technology in Alexandria container terminal will promote the idea of using renewable source of energy.	0.0%	0.9%	14.3%	54.5%	30.3%
2.3. The implementation of digitalization technology in Alexandria container terminal will help in providing new ideas that support the concept of sustainability.	0.0%	0.0%	10.7%	47.1%	42.2%
2.4. The implementation of digitalization technology in Alexandria container terminal will help in handling new generations of ships.	0.0%	1.9%	10.9%	50.9%	36.3%
2.5. The implementation of digitalization technology in Alexandria container terminal will increase the productivity and efficiency of the port operations.	0.0%	0.9%	7.8%	52.9%	38.4%
2.6. The implementation of digitalization technology in Alexandria container terminal will end the use of paper-	0.0%	0.0%	8.7%	53.1%	38.2%

Table 3 customer satisfaction dimension.

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based system and decrease human interactions and errors.					
Dimension Average	0.00 %	0.6%	10.3 %	50.7 %	38.4 %

C. Sustainability dimension:

As for applying the sustainability dimension in the Alexandria port container terminal, Table 3 demonstrates that most of respondents 52.7% agreed on applying digitalization, whereas 1% disagreed. In addition, there were 37% of the respondents who strongly agreed and 9.3% chose to be neutrals. as shown in table 4.

Strongly Disagree Disagree Strongly Neutral 3. Section Agree three: Agree Sustainability dimension. 3.1. The implementation of digitalization technology in Alexandria 41.2 container 0.0% 1% 7.8% 50% terminal % will help in handling more ships and operations. 3.2. The implementation of digitalization technology in Alexandria container 55.8 34.4 will 0.0% 0.9% 8.9% terminal provide % % sustainable discharging imported operations for shipments. 3.3. The implementation of digitalization technology in 50.9 40.4 Alexandria container 0.0% 1.9% 6.8% terminal will provide a % % infrastructure and green working areas. 3.4. digitalization 0.0% 0.0% 10.7 56.9 32.4

Table 4 Sustainabili	ty dimension.
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technology will increase the use of renewable energy.			%	%	%
3.5. digitalization technology will decrease the wastes of port operations.	0.0%	1.9%	9.8%	52.9 %	35.4 %
3.6. digitalization technology will provide efficient methods for water and energy usage.	0.0%	0.0%	11.8 %	50%	38.2 %
Dimension Average	0.00 %	1%	9.3%	52.7 %	37%

D. Profit dimension:

Regarding the profit dimension, the results indicate that about 53.1% of the respondents agreed on applying the concept of digitalization in Alexandria port container terminal to gain the competitive advantage and increase profit. while 38.9% of answers agreed, 7.4% were neutral and 0.6% disagreed, as illustrated in table 5.

Table 5 Profit dimension.

4. Section four: Profit dimension.	Strongly Disagre	Disagre e	Neutral	Agree	Strongly Agree
4.1. Applying digitalization technology will increase the number of ships.	0.0%	0.0%	6.9%	51.9 %	41.2 %
4.2. Applying digitalization technology will increase the number of customers.	0.0%	0.9%	10.8 %	52.9 %	35.4 %
4.3. Applying digitalization technology will increase the efficiency in the long run.	0.0%	0.0%	4.9%	56.9 %	38.2 %

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4.4. Applying digitalization technology will increase the efficiency in the long run.	0.0%	0.9%	6%	53.9 %	39.2 %
4.5. Applying digitalization technology will increase the productivity of the port.	0.0%	1%	9.8%	50.1 %	39.1 %
4.6. Applying digitalization technology will support the competitiveness of the port.	0.0%	0.9%	6%	52.9 %	40.2 %
Dimension Average	0.00 %	0.6 %	7.4%	53.1 %	38.9 %

E. Economy dimension:

From the respondent's point of view, 35.5% of the respondents strongly agreed and felt satisfied about applying digitalization and 54.9% of them agreed. About 9.3% were neutrals, and the rest 0.3% disagreed, as shown in table 6.

5. Section five: Economy dimension.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
5.1. Applying digitalization technology will help in providing training opportunities for workers.	0.0%	0.0%	8.8%	52.9 %	38.3 %
5.2. Applying digitalization technology will support the economy of Egypt.	0.0%	0.9%	9.8%	55.9 %	33.4 %
5.3. Applying digitalization technology will make Egypt one of the top leading countries in the field of logistics comparing to other countries.	0.0%	0.0%	8.8%	55.9 %	35.3 %

Table 6 Economy dimension.

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5.4. Applying digitalization technology will increase the foreign investment in the country.	0.0%	0.0%	11.7 %	56.9 %	31.4 %
5.5. Applying digitalization technology will support multimodal transport.	0.0%	0.9%	7.8%	52.9 %	38.4 %
5.6. Applying digitalization technology will link the port with different modes of transportation.	0.0%	0.9%	8.9%	54.9 %	35.3 %
Dimension Average	0.00 %	0.3 %	9.3%	54.9 %	35.5 %

4. RESULTS AND RECOMMENDATIONS:

The information and communication technology used in administrative operations and the improvement of the environmental performance of the port of Alexandria achieve the integrated concept of the smart port and sustainable development, transparency in providing services and completing transactions as quickly as possible. In addition, the shift towards electronic management has become a global trend. Furthermore, it encourages the adoption of electronic services systems, knowing that implementing the improvement of electronic services solely does not fulfill the purpose behind the pursuit of developing the port. This is because work must be done to ensure the development of the infrastructure for the various sectors of the port. This system consists of the following main systems: ship movement information management system, cargo movement system, marine services system, document preservation and management system, ports and ships safety and security system, crisis management system, and electronic commerce system.

It is clear that the above-mentioned results agree with the main objectives of the research, which is to monitor and clarify the current situation of the Alexandria port container terminal and its departments. This is in addition to identifying the difficulties that face the transformation into a digital container terminal, and how to implement the conversion of the Alexandria port container terminal to a

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modern container terminal to keep pace with the rapid developments in the marine sector. Thus, the following recommendations and proposals should be considered:

- Encouraging investment in digital technology to improve the efficiency and productivity of Alexandria port container terminal.
- Developing an independent department specialized in the digital technology application projects.
- Focusing on information and communication technology in administrative operations.
- Working on continually developing information technology inside the Egyptian seaports and their various sectors.
- Facilitating the procedures in the ports, applying digitalization technology, and reducing the time consumed in the operation of import and export processes.
- Expanding the use of digital technology through the different stages of cargo movement to the final customer and providing tracking technology for shipments.
- Paying attention to providing training to employees to develop their capabilities in order to cope with digital transformation.
- Increasing knowledge and technological skills for all administrative levels to maintain and continuously develop human capital.
- > The necessity to provide a creative and innovative working environment.
- Focusing on the principle of self-sufficiency while reducing costs and paying attention to high quality information technology performance inside the container terminal of Alexandria port.

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"Questionnaire on the impact of digitalization on the efficiency of Egyptian Container terminals "Case study: Alexandria Container terminal"

Karim Ashraf, Mr. A	Adham Shalaby and	Dr. Ahmed
5:10 years	10:15 years	15:20 years
Freight forwarder	Alexandria conta	iner terminal
Masters	Doctorate	e (PHD)
	Karim Ashraf, Mr. A 5:10 years Freight forwarder Masters	Karim Ashraf, Mr. Adham Shalaby and 5:10 years 10:15 years Freight forwarder Alexandria conta Masters Doctorate

Alexandria Container terminal is considered as one of the most important ports in Egypt due to its strategic location and its impact on the economy of Egypt. Thus, this questionnaire will be used in this research in order to evaluate the capability of applying digitalization technology in Alexandria container terminal through list of questions. Moreover, the answers of those questions will be analyzed in order to ensure the efficiency of applying such project.

	Kindly answer	Strongly	Disagree	Neither agree	Agree	Strongly
	the following	disagree	(2)	nor disagree	(4)	agree
	questions	(1)		(3)		(5)
		Ро	rt Managem	ent		
1	The legislative and legal environment of Alexandria container terminal support the process of applying digitalization					
2	The port management works on					

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	decreasing					
	operational cost					
	through focusing					
	on new					
	technologies					
3	Alexandria					
	container					
	terminal					
	management					
	works in a					
	competitive way					
	to be unique in					
	the provided					
	services					
4	Alexandria					
4	containar					
	tomainal					
	management is					
	investing in its					
	infrastructure to					
	be fully					
_	digitalized					
5	Alexandria					
	container					
	terminal					
	management is					
	investing in new					
	berths that works					
	with new					
	technologies					
6	Alexandria					
	container					
	terminal					
	management is					
	trying to					
	compete with					
	other ports in the					
	Mediterranean					
	Sea					
	The impact of a	pplying digital	ization techn	ology on custom	ner satisfac	tion
1	The					
	implementation					
	of digitalization					
	technology in					
	Alexandria					
	container					
	terminal will					
	increase					

-				
	customer			
	satisfaction			
2	The			
	implementation			
	of digitalization			
	technology in			
	Alexandria			
	container			
	terminal will			
	promote the idea			
	of using			
	renewable			
2	The			
5	implementation			
	of digitalization			
	technology in			
	Alexandria			
	container			
	terminal will			
	help in providing			
	new ideas that			
	support the			
	concept of			
_	sustainability			
4	The			
	implementation			
	tochnology in			
	Alexandria			
	container			
	terminal will			
	help in handling			
	new generations			
L	of ships			
5	The			
	implementation			
	of digitalization			
	technology in			
	Alexandria			
	container			
	increase the			
	productivity and			
	efficiency of the			
	port operations			

6	The					
0						
	implementation					
	of digitalization					
	technology in					
	Alexandria					
	container					
	terminal will end					
	the use of paper-					
	based system					
	and decrease					
	human					
	interactions and					
	errors					
	The impact	of applying die	ritalization te	chnology on sus	tainahility	
	The impact	or apprying dig	situmzation te	childiogy on su	sumuonny	
1	The					
	implementation					
	of digitalization					
	technology in					
	Alexandria					
	containor					
	torminal will					
	terminal will					
	help in handling					
	more ships and					
_	operations					
2	The					
	implementation					
	of digitalization					
	technology in					
	Alexandria					
	container					
	terminal will					
	provide					
	sustainable					
	discharging					
	operations for					
	imported					
	shipments					
3	The					
	implementation					
	of digitalization					
	technology in					
	Alexandria					
	container					
	torminal will					
	provide a green					
	infrastructure					
	and working					

المجلد (٨) - العدد (١٤) - الجزء الاول يوليو ٢٠٢٢م

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	areas					
4	digitalization technology will increase the use of renewable energy					
5	digitalization technology will decrease the wastes of port operations					
6	digitalization technology will provide efficient methods for water and energy usage					
	The impac	t of applying d	igitalization	technology on p	ort profit	
1	Applying digitalization technology will increase the number of ships					
2	Applying digitalization technology will increase the number of customers					
3	Applying digitalization technology will increase the efficiency in the long run					
4	Applying digitalization technology will decrease operation working time					
5	Applying digitalization technology will increase the					

productivity of the port 6 Applying digitalization technology will support the competitiveness of the port The impact of applying digitalization technology on the economy 1 Applying digitalization technology will help in providing training opportunities for workers 2 Applying digitalization technology will support the economy of Egypt 3 Applying digitalization technology will make Egypt one of the top leading countries in the field of logistics comparing to other countries 4 Applying digitalization technology will increase the foreign investment in the country Applying 5 digitalization technology will support multimodal transport 6 Applying digitalization

technology will			
different modes			
of transportation			

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